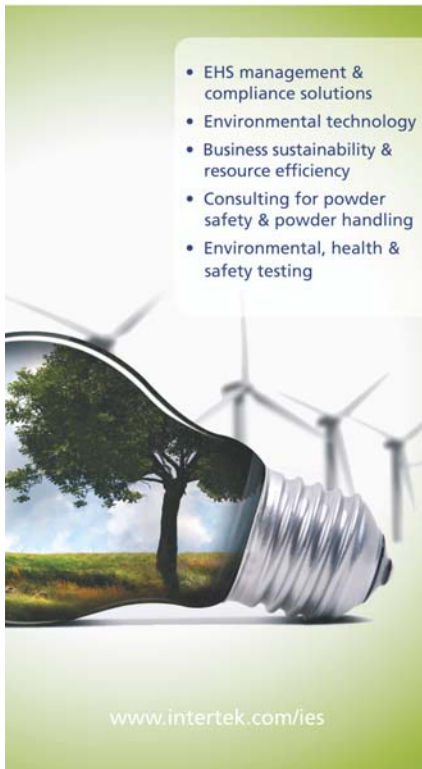


Intertek Expert Services

Industry-leading EHS Services
for Sustainable Business



Mass and Energy Flow Analysis

Minimizing Production Costs through MEFA

Introduction

MEFA is a analytical method developed by Expert Services based on decades of experience in problem analysis and optimization in chemical production plants. It is an efficient method for analyzing various types of operational processes (production processes, production infrastructure, environmental technology, etc.).

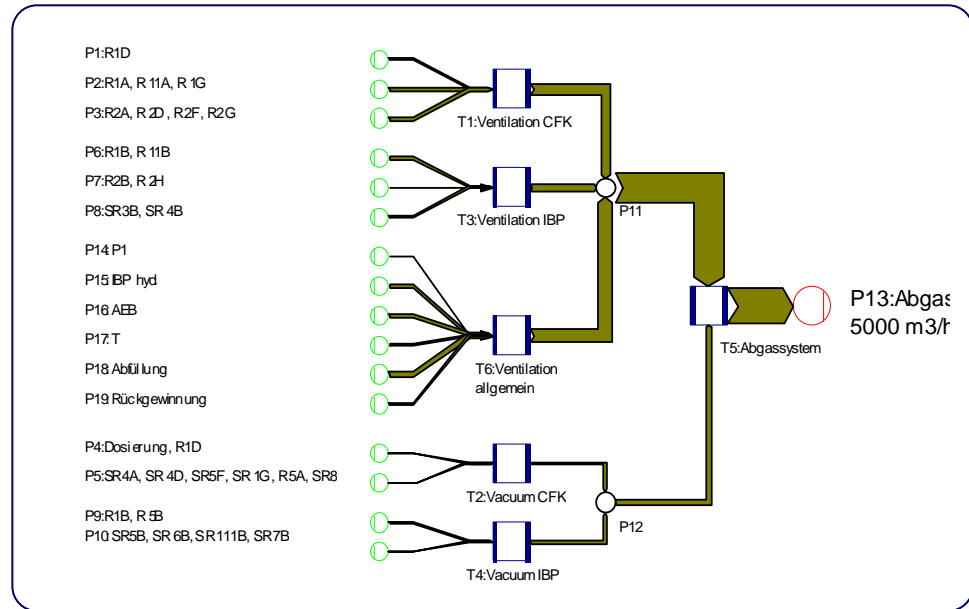
MEFA can also help simulate processes, study their optimization potential, and evaluate scenarios calculating the different possible results by changing process parameters.



Example

Problem

Chemical production plants handle a variety of materials, intermediates and end products – organic compounds that release gaseous emissions due to their vapor pressure. At a production plant of a well known chemical company industrial exhaust gases from various reactors were being combined with exhaust gases from other sources, scrubbed in an exhaust cleaning system, and released into the atmosphere. With time, changes in production processes led to a disturbing odor in the area, requiring the entire exhaust cleaning system to be reworked

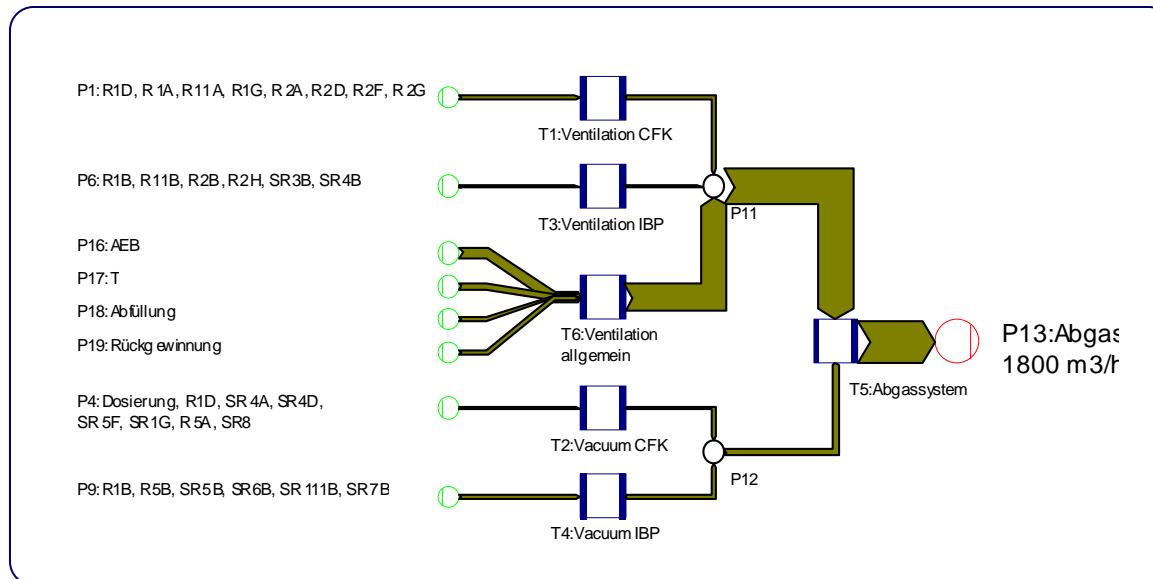


Solution

In a two phases approach MEFA led to a dramatic reduction of exhaust gases that required cleaning at the plant.

MEFA Step 1

With MEFA a scenario was created in which – through organizational measures alone – the exhaust volume flow was initially reduced to about 1,800 m³/h.

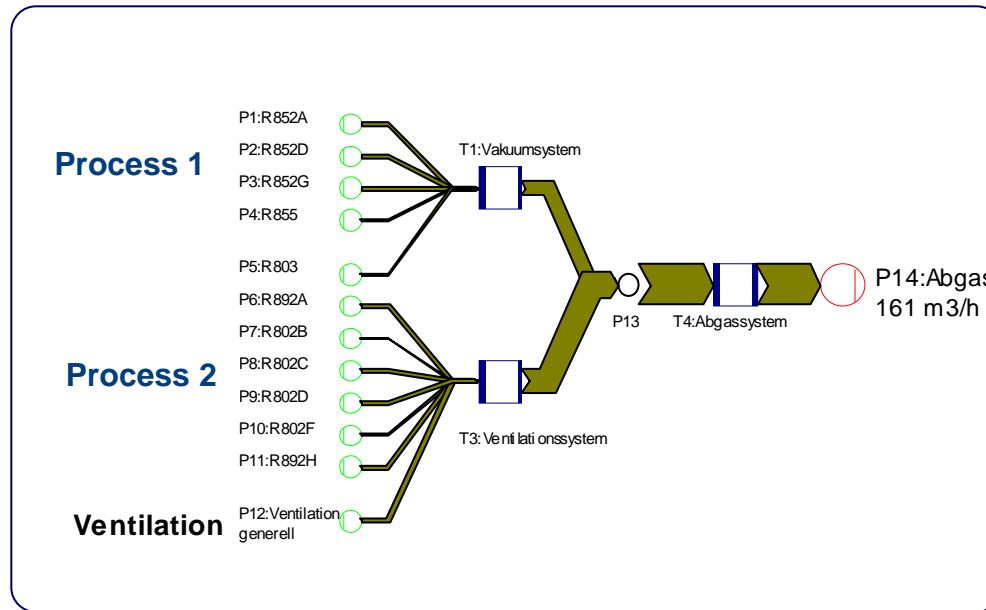


MEFA Step 2



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The overall process was then optimized in collaboration with production engineers on site. Significant improvements were achieved through simulation of sequential process steps. Rigorous implementation of all devised improvements ultimately led to reduction of flow volume to about 160 m³/h. This represents a reduction of 97% over the initial situation.



Procedure



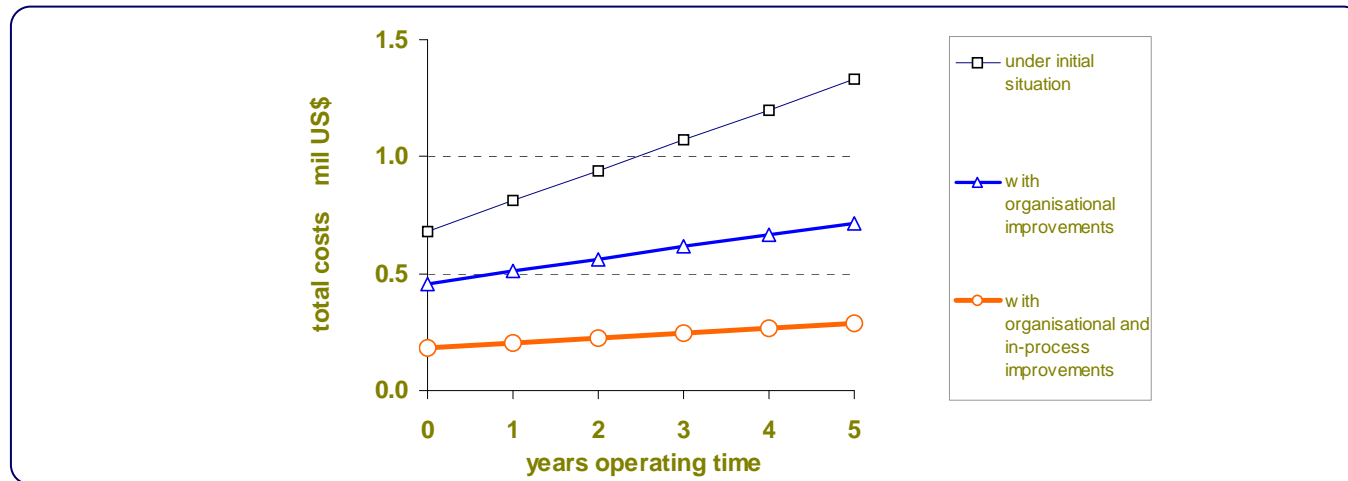
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In this project MEFA was used as an analyzing method to improve the exhaust air system of the entire production plant following the steps:

- Generate basic information on the existing production plant.
- Reduce the flow volume through organizational improvements.
- Optimize through in-process and end-of-process improvements.
- Generation of reliable basic data for detailed design of a new exhaust air cleaning system (end-of-pipe technology).

Benefits

The MEFA analysis led in this case to a reduction of emission as to a new cleaning system, about 30 times smaller than a comparable system the original exhaust air volume would have had. By this optimization work the five-year operating costs have been reduced by over 75% whereby total savings of over 1 Mill. US\$ have been achieved.



The logo consists of the word "Intertek" in a white, bold, sans-serif font, centered within a dark blue rounded rectangle.

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